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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,844	10/30/2003	Wayne F. Block	GEMS8081.185	2843

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EXAMINER
KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,844	BLOCK ET AL.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/5/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification is objected to because of the following informalities, which appear to be minor draft errors including drawing inconsistencies.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (paragraph 31, line 3, "cathode 78"; replacing "78" with - -80- -) and (paragraph 31, line 3, "anode 80"; replacing "80" with - -78- -).

Appropriate correction is required.

Claim Objections

2. Claim 1 is objected to because of the following informality.

In the following format (location of objection; suggestion for correction), the following correction may obviate the objection: (claim 1, line 2, "an MR imaging apparatus"; replacing "an MR" with - -a magnetic resonance (MR)- -).

For purposes of examination, the claim has been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Pelc et al. (US Patent Application Publication 2003/0123612).

Pelc et al. discloses a system comprising a magnetic resonance (MR) imaging apparatus (fig. 3, #32) to acquire MR data (paragraph 29, line 4, "MRI") of a subject (fig. 3, subject in #50 or 52), and an x-ray imaging apparatus (fig. 3, #42 and 44 at least) having a rotatable anode (paragraph 35, lines 11-13) integrally disposed in the MR imaging apparatus (fig. 3, #32) to acquire radiographic data of the subject (paragraph 32, line 3, "x-ray images").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al. as applied to claim 1 above, and further in view of Wen (US Patent 6798118).

Pelc et al. discloses a system as recited above. Pelc et al. further discloses rotating the anode in a magnetic field generated in a magnet bore of the MR imaging apparatus during data acquisition (paragraph 35) and rotating an anode at a frequency before MR data acquisition (paragraph 35, lines 11-13, and paragraph 32, lines 1-5).

However, Pelc et al. does not disclose a motor assembly, wherein the motor assembly includes a non-magnetic flux motor, and wherein the non-magnetic flux motor includes a piezoceramic or radial flux motor.

Wen teaches a motor assembly, wherein the motor assembly includes a non-magnetic flux motor, and wherein the non-magnetic flux motor includes a piezoceramic or radial flux motor (col. 1, lines 7-15).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Pelc et al. with the motor assembly of Wen, since one would be motivated to make such a modification for avoiding electromagnetic interference effects in a system (col. 1, lines 9-10) as implied from Wen.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al. and Wen as applied to claim 5 above, and further in view of Wirth et al. (US Patent 5339348).

Pelc et al. as modified above suggests a system as recited above. Pelc et al. further discloses operating an anode about the magnet bore during MR data acquisition (paragraph 32, last 3 lines).

However, Pelc et al. does not disclose an anode configured to rotate from a specified frequency to a slower frequency without a force applied thereon.

Wirth et al. teaches an anode configured to rotate from a specified frequency to a slower frequency without a force applied thereon (abstract, lines 9-13).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Pelc et al. as modified above with the rotating

frequency of Wirth et al., since one would be motivated to make such a modification to eliminate components (col. 2, lines 33-34), which would reduce costs.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al. and Wen as applied to claim 2 above, and further in view of Grady (US Patent 4162420).

Pelc et al. as modified above suggests a system as recited above.

However, Pelc et al. does not disclose a biasing spring operationally connected to an anode such that rotation of the anode biases the spring in a stored energy condition, and wherein the spring is further configured to rotate the anode when the bias placed on the spring is removed.

Grady teaches a biasing spring (fig. 1, #25) operationally connected to an anode (fig. 1, #30) such that rotation of the anode (fig. 1, #30) biases the spring (fig. 1, #25) in a stored energy condition (col. 3, lines 5-8), and wherein the spring (fig. 1, #25) is further configured to rotate the anode (fig. 1, #30) when the bias placed on the spring (fig. 1, #25) is removed (col. 3, lines 5-8).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Pelc et al. as modified above with the spring of Grady, since one would be motivated to make such a modification for providing a more stable system (col. 3, lines 5-8) as implied from Grady.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al. as applied to claim 1 above, and further in view of Burl et al. (US Patent 6211677).

Pelc et al. discloses a system as recited above.

However, Pelc et al. does not disclose a split-coil MR magnet.

Burl et al. teaches a split-coil MR magnet (col. 5, lines 38-40).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Pelc et al. with the split-coil magnet of Burl et al., since one would be motivated to make such a modification for making it easier for patient to enter and access (col. 5, lines 38-40) as shown by Burl et al.

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al., Mistretta et al. (US Patent 5873825), and Burl et al.

Pelc et al. discloses an apparatus (fig. 3) comprising a magnetic resonance imaging system (fig. 3, #32) having a plurality of gradient coils (paragraph 29, lines 8-10) positioned about a bore of a magnet (fig. 3, #34) to impress a polarizing magnetic field (fig. 3, "B_o") about a subject (fig. 3, subject in #50 or 52), and necessarily having an assembly configured to control rotation of a rotatable anode (paragraph 35, lines 11-13) disposed about the bore of the magnet (fig. 3, #34).

However, Pelc et al. does not disclose an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images, a piezoceramic drive motor, and an anode in a bore.

Mistretta et al. teaches an RF transceiver system (fig. 1, #150) and an RF switch (fig. 1, #154) controlled by a pulse module (fig. 1, #121) to transmit RF signals to an RF coil assembly

(fig. 1, #139) to acquire MR images (title). Wen teaches a piezoceramic drive motor (col. 1, lines 7-15).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Pelc et al. with the RF components of Mistretta et al., since one would be motivated to make such a modification for easier control of the MRI system (fig. 1, #122) as implied from Mistretta et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Pelc et al. with the motor of Wen, since one would be motivated to make such a modification for avoiding electromagnetic interference effects in a system (col. 1, lines 9-10) as implied from Wen.

It also would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Pelc et al. as modified above with an anode in a bore, since rearranging parts of an invention involves only routine skill in the art. One would be motivated to make such a modification to simplify installation of x-ray system into an MRI system.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al., Mistretta et al., and Wen as applied to claim 10 above, and further in view of Bavor (US Patent 3456175).

Pelc et al. as modified above suggests an apparatus as recited above. Pelc et al. further discloses an assembly configured to operate an anode prior to data acquisition and not operate the anode during data acquisition (paragraph 32).

However, Pelc et al. does not disclose not rotating an anode.

Bavor teaches not rotating an anode (col. 3, lines 19-37).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Pelc et al. as modified above with the non-rotation of Bavor, since one would be motivated to make such a modification for reducing wear on the system (col. 3, lines 19-37) as implied from Bavor.

10. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al., Mistretta et al., and Wen as applied to claim 10 above, and further in view of Grady.

Pelc et al. as modified above suggests an apparatus as recited above.

However, Pelc et al. does not disclose an energy storage device operationally connected to an anode, wherein a motor assembly is further configured to counter-rotate an anode so as to store energy in the energy storage device, and wherein the energy storage device includes a spring.

Grady teaches an energy storage device (fig. 1, #25) operationally connected to an anode (fig. 1, #30), wherein a motor assembly (fig. 1, #16 and 29) is further configured to counter-rotate an anode (fig. 1, #30) so as to store energy in the energy storage device (fig. 1, #25), and wherein the energy storage device includes a spring (fig. 1, #25).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Pelc et al. as modified above with the energy storage device of Grady, since one would be motivated to make such a modification for providing a more stable system (col. 3, lines 5-8) as implied from Grady.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al. in view of Dorri et al. (US Patent 5574417).

Pelc et al. discloses a method (fig. 3) comprising the steps of impressing a magnetic field (fig. 3, "B_o") about a subject (fig. 3, subject in #50 or 52), projecting high frequency electromagnetic energy (fig. 3, energy from #42) at the subject (fig. 3, subject in #50 or 52), rotating an anode of a high frequency electromagnetic energy tube assembly in the magnetic field during projecting (paragraph 35, lines 11-13), and acquiring MR and radiographic data from the subject (paragraph 32).

However, Pelc et al. does not disclose a substantially homogeneous magnetic field.

Dorri et al. teaches a substantially homogeneous magnetic field (col. 2, lines 15-17).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Pelc et al. with the homogeneous magnetic field of Dorri et al., since one would be motivated to make such a modification for higher quality MRI imaging (col. 2, lines 57-58) as implied from Dorri et al.

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al. and Dorri et al. as applied to claim 16 above, and further in view of Wirth et al.

Pelc et al. as modified above suggests a method as recited above.

However, Pelc et al. does not disclose allowing an anode to decelerate in rotational speed from a pre-data acquisition rotation speed during data acquisition.

Wirth et al. teaches allowing an anode to decelerate in rotational speed from a pre-data acquisition rotation speed during data acquisition (abstract, lines 9-13).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Pelc et al. as modified above with the decelerating of Wirth et al., since one would be motivated to make such a modification to eliminate components (col. 2, lines 33-34), which would reduce costs.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al., Dorri et al., and Wirth et al. as applied to claim 17 above, and further in view of Tran-Quang (US Patent 3942059).

Pelc et al. as modified above suggests a method as recited above.

However, Pelc et al. does not disclose rotational speeds including approximately 200 Hz.

Tran-Quang teaches rotational speeds including approximately 200 Hz (col. 7, lines 10-11).

It also would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Pelc et al. with the 200 Hz rotational speed of Tran-Quang, since where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. One would be motivated to make such a modification to increase operating loads compared to slower rotating anodes.

14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al. and Dorri et al. as applied to claim 16 above, and further in view of Grady.

Pelc et al. as modified above suggests a method as recited above.

However, Pelc et al. does not disclose counter-rotating an anode prior to data acquisition to store energy in a spring connected to the anode and thereafter removing a bias placed on the anode to allow the spring to release the stored energy during data acquisition.

Grady teaches counter-rotating an anode (fig. 1, #30) prior to data acquisition to store energy in a spring (fig. 1, #25) connected to the anode (fig. 1, #30) and thereafter removing a bias placed on the anode (fig. 1, 330) to allow the spring (fig. 1, #25) to release the stored energy during data acquisition (col. 3, lines 5-8).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Pelc et al. as modified above with the spring of Grady, since one would be motivated to make such a modification for providing a more stable system (col. 3, lines 5-8) as implied from Grady.

15. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelc et al., Dorri et al., and Grady as respectively applied to claims 19 and 16 above, and further in view of Wen.

Pelc et al. as modified above suggests a method as recited above.

However, Pelc et al. does not disclose counter-rotating with a radial flux or piezoceramic motor.

Grady teaches counter-rotating with a radial flux or piezoceramic motor (col. 1, lines 7-15).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Pelc et al. as modified above with the motor of Wen, since one would be motivated to make such a modification for avoiding electromagnetic interference effects in a system (col. 1, lines 9-10) as implied from Wen.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gk

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